NOTES:

1. DRAINFIELD LATERAL PIPING TO BE LAID LEVEL (CONSTANT ELEVATION) AT ℄ ELEVATIONS SHOWN IN TABLE ON SHT. 21; LATERAL TRENCH SPACING VARIES ACCORDINGLY. LATERAL TRENCH FLOORS & INFILTRATION CHAMBERS TO BE SET AT CONSTANT ELEVATION FOR LATERAL PIPING (SEE SECTIONS ON SHEETS 21 & 22).
2. SEE SHT. 21 FOR LONGITUDINAL SECTION OF DRAINFIELD LATERAL(S).
3. SEE SHT. 3 FOR CLEARING & DEMO REQ'TS. IN NEW DRAINFIELD AREA.
4. SURPLUS NATIVE FILL FROM EXCAVATION OF DRAINFIELD TRENCHES TO BE USED FOR CONSTRUCTION OF SURFACE-RUNOFF PROTECTIVE BERM -- SEE SHT. 21 FOR BERM CONSTRUCTION DETAILS.
5. DUE TO 20%± GROUND SLOPE, FIELD VERIFY ALL PIPE LENGTHS SHOWN AND ADJUST FOR INSTALLATION AS REQ'D.

CONTROL PT #3
N: 49519.1552
E: 148425.3116
Z: 5068.26
D: #5 REBAR BY POLE

TEST PIT #3

NORTH

1" = 30'-0"
[on 11x17 sheet]

℄ 10" OUTLET ELEV. 5069.75

60 LF 10" CMP HEAD TANK FOR ZONE 2

3' ℄ TO ℄ (TYP.)

4 NEW SURFACE RUNOFF BERM (TYP.)

~180 lf BERM

~85 lf BERM

~90 lf BERM

24"x36" HANDHOLE FOR EA. E & W PAIR OF LATERAL CONNECTIONS (TYP. 10 PLACES)

30' (TYP.)

4" MANIFOLD TO ZONE 1 LATERALS

℄ 4" ELEV. 5038.25 START OF ZONE 1 MANIFOLD

370± lf 4" CI 200 PVC TO ZONE 1

385± lf 4" CI 200 PVC TO ZONE 2

NEW SURFACE RUNOFF BERM (TYP.) 4

1½" CL. 200 (SDR21) PVC LATERALS W/ 0.125" PERFORATIONS @ 5'-0" O.C. (TYP. ALL LATERALS) -- SEE DRAINFIELD SECTION SHT. 21

34" INFILTRATION CHAMBERS (TYP. ALL LATERALS) -- SEE INFILTRATION CHAMBER SECTIONS SHT. 22

1W-160' 1E-192'
2W-191' 2E-191'
3W-190' 3E-186'
4W-184' 4E-176'
5W-173' 5E-122'
6W-140' 6E-129'
7W-137' 7E-129'
8W-133' 8E-119'
9W-129' 9E-109'
10W-123' 10E-97'

11' TO 15' O.C. LATERAL SPACING -- VARIES (TYP.) 1

ZONE 1 - (8) LATERALS NO. 1 E & W THRU NO. 4 E & W (1,470 lf TOTAL)

ZONE 2 - (12) LATERALS NO. 5 E & W THRU NO. 10 E & W (1,540 f TOTAL)

11' TO 15' O.C. BETWEEN LATERALS -- VARIES (TYP.) 1

℄ 4" ELEV. 5029.25 END OF ZONE 1 MANIFOLD

℄ 4" ELEV. 5025.75 START OF ZONE 2 MANIFOLD

℄ 4" ELEV. 5011.75 END OF ZONE 2 MANIFOLD

PERFORATED HDPE TUBING CONNECTED TO INVERT OF MANIFOLD AT DOWNSTREAM END (FOR WINTER DRAIN) – SEE DETAIL SHT. 22 (TYP. EACH MANIFOLD)

ARTICULATE 34" INFILTRATION CHAMBERS JOINTS AS REQ'D TO FOLLOW CONSTANT ELEV. ALIGNMENT - USE MULTIPLE JOINTS IF/AS REQ'D. TO NOT EXCEED MFR'S DEFLECTION LIMITS

TO MATCH INFILTRATION CHAMBER ARTICULATION, DEFLECT PVC LATERAL PIPING WHERE W/IN MFR'S. ALLOWANCES; OTHERWISE PROVIDE 22 1/2-DEG SCH. 80 PVC GLUED BENDS (TYP.)

TEST PIT #2

TEST PIT #1

50' STREAM OFFSET

1½" CLEAN-OUT W/ HANDHOLE AT END OF EA. LATERAL (TYP.) - SEE SECTION SHT. 21

4" TRANSPORT PIPE TO ZONE 2 AT 3'± B.G.S. TO PASS BEELOW ZONE 1 LATERALS (SEE DRAINFIELD SECTION SHT. 21)

ISOLATION VALVE & FLOW CONTROL ORIFICE AT EACH LATERAL CONN. (TYP.) - SEE ORIFICE TABLE & DRAINFIELD SECTION SHT. 21

4" MANIFOLD TO ZONE 1 LATERALS

℄ HIKING TRAIL

℄ DRAINAGE

TOP OF BANK

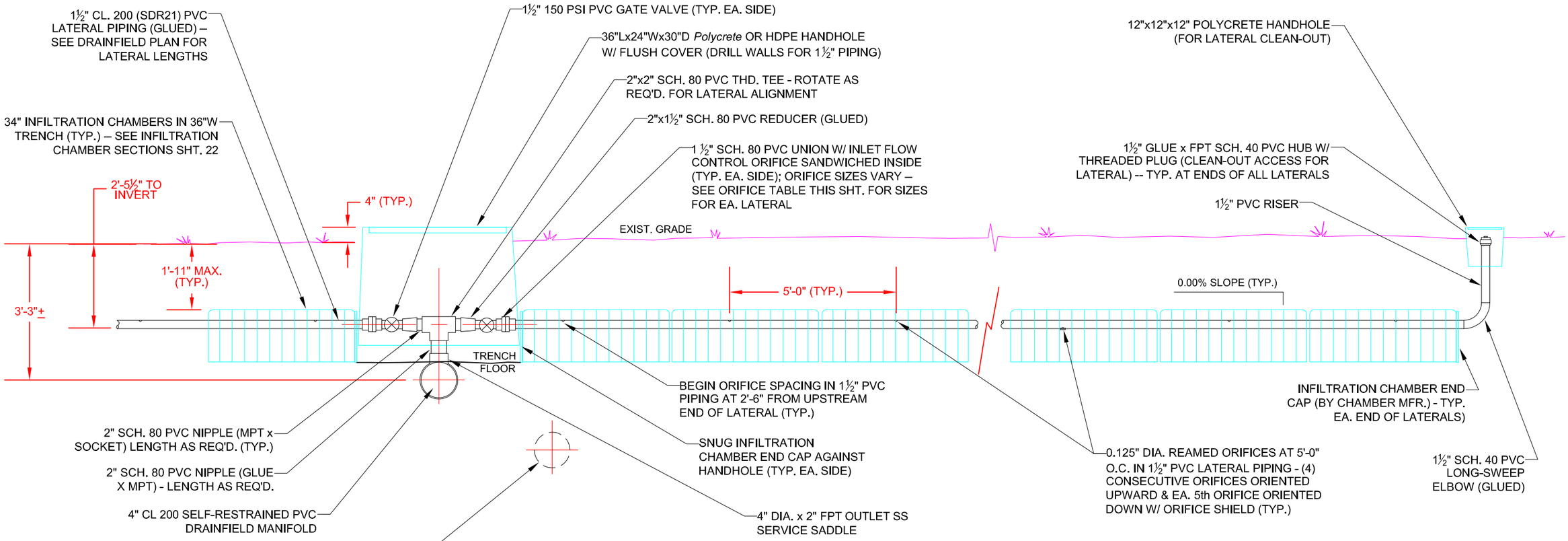
5080' 5070' 5060' 5050' 5040' 5030' 5020' 5010' 5000'

264

sheet 20 of 25

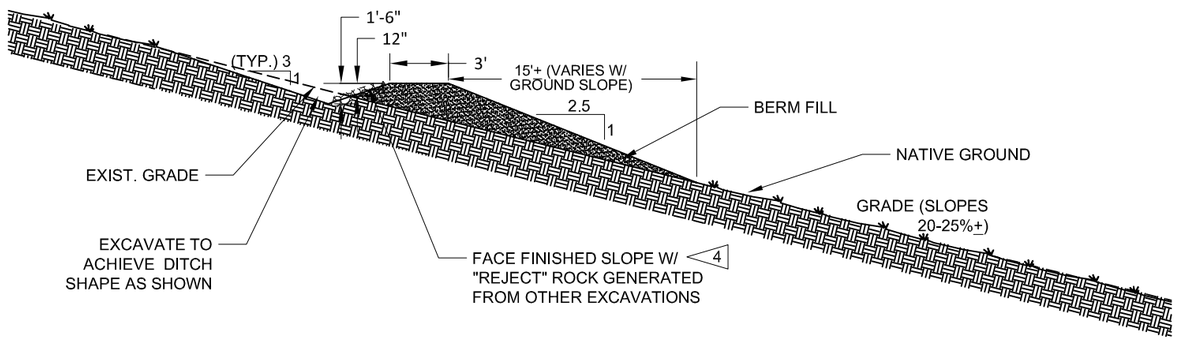
designed: Alden G. Beard. P.E.
date: July 31, 2017
revised: Feb. 19, 2019

Lewis & Clark Caverns State Park
Upper Visitor Center Septic Replacement
DRAINFIELD PLAN



DRAINFIELD LATERAL SECTION (TYP.)

no scale



DRAINFIELD SURFACE RUNOFF DIVERSION BERM SECTION

scale: ⅛" = 1'-0"

NOTES:

1. TAPER ENDS OF BERMS AT 5:1 SLOPE.
2. SURPLUS FILL FROM EXCAVATION OF DRAINFIELD, MANHOLE & PIPELINE TRENCHES TO BE USED FOR CONSTRUCTION OF BERM -- COMPACT BERM FILL TO 90% OF MAX. AASHTO DENSITY. MINIMUM BERM DIMENSIONS SHOWN -- ADD'L. SURPLUS FILL CAN BE USED TO RAISE OR WIDEN BERM (KEEPING SLOPES AS SHOWN) AT CONTRACTOR'S OPTION IF ADD'L. FILL DISPOSAL IS NEEDED. SURPLUS FILL MAY NOT BE DISPOSED OF ELSEWHERE ON PROJECT SITE.
3. REMOVE EXIST. VEGETATION & STRIP TOPSOIL BEFORE BERM CONSTRUCTION; TOP BERM W/ SALVAGED TOPSOIL & RE-SEED.
4. FACE UPSTREAM SLOPE OF FINISHED BERM W/ "REJECT" ROCK GENERATED FROM OTHER EXCAVATIONS ON AN "AS AVAILABLE" BASIS -- 4" MIN. TO 8" MAX. NOMINAL SIZE, LAID APPROX. 8" THICK; IMPORTING ROCK FROM BEYOND OVERALL PROJECT EXTENTS IS NOT REQ'D.

Drainfield Lateral Elevations & Inlet Orifice Sizes

lateral no.	lateral length (ft)	GS elev. at lateral	lateral invert elev.	lateral inlet orifice size (in)
Zone 1:				
1E	192	5041.5	5039.04	17/32
1W	160	5041.5	5039.04	1/2
2E	191	5038.0	5035.54	1/2
2W	191	5038.0	5035.54	1/2
3E	186	5035.5	5033.04	31/64
3W	190	5035.5	5033.04	31/64
4E	176	5032.5	5030.04	29/64
4W	184	5032.5	5030.04	29/64
subtotal:	1,470			
Zone 2:				
5E	122	5029.0	5026.54	1/2
5W	173	5029.0	5026.54	33/64
6E	129	5026.0	5023.54	7/16
6W	140	5026.0	5023.54	7/16
7E	129	5023.5	5021.04	13/32
7W	137	5023.5	5021.04	27/64
8E	119	5020.5	5023.54	3/8
8W	133	5020.5	5018.04	25/64
9E	109	5017.5	5015.04	11/32
9W	129	5017.5	5015.04	3/8
10E	97	5015.0	5012.54	5/16
10W	123	5015.0	5012.54	23/64
subtotal:	1,540			
Total length:	3,010			

[SEE SPECIFICATION REQ'TS. FOR SPARE ORIFICES TO BE FURNISHED.]

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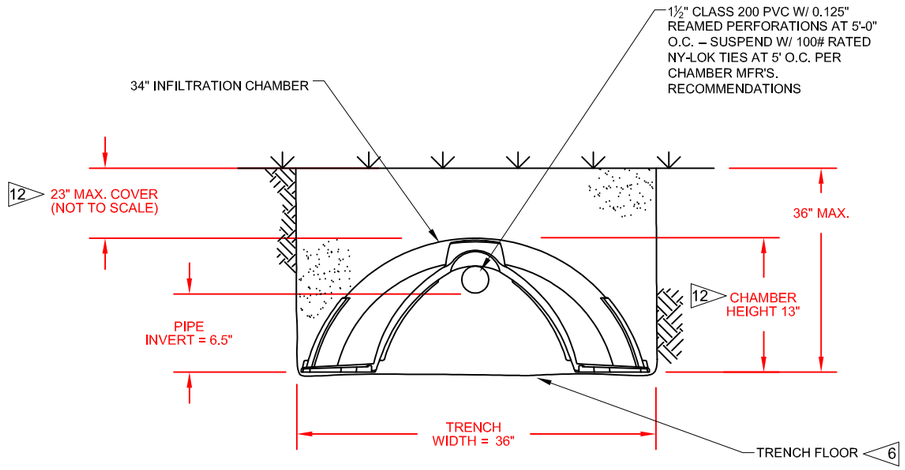
Upper Visitor Center Septic Replacement
DRAINFIELD SECTION & LATERAL DATA

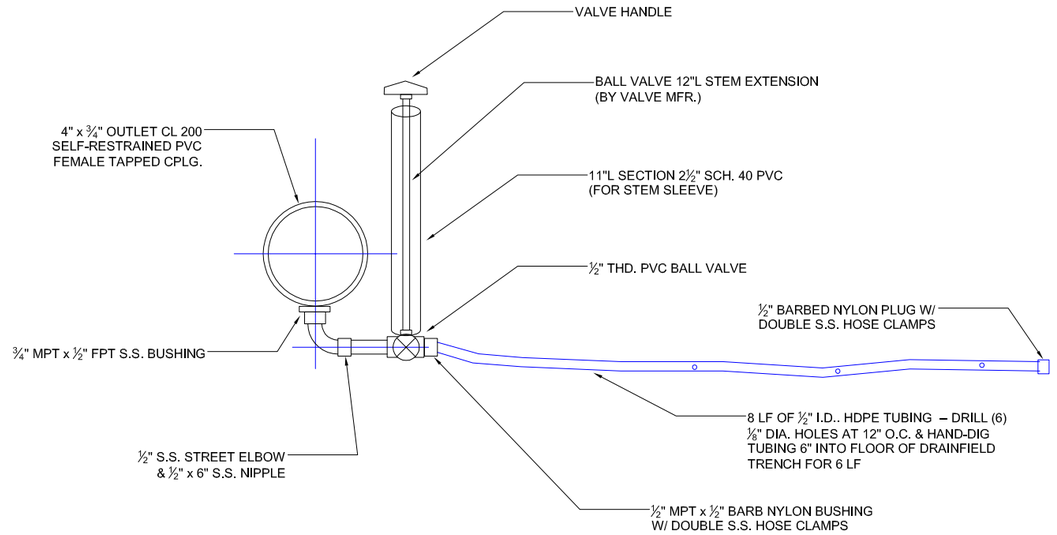


NOTES:

1. EXCAVATE TRENCHES AT UNIFORM ELEVATION PER DRAINFIELD PLAN AND DETAILS.
2. SMOOTH IRREGULARITIES IN THE TRENCH FLOOR EXCAVATION TO A LEVEL FLAT SURFACE.
3. ASSEMBLE LEACHING CHAMBERS AND APPURTENANCES AND INSTALL/SUPPORT DISTRIBUTION LATERAL PIPING PER CHAMBER MFR'S. RECOMMENDATIONS.
4. INSTALL END CAPS AND SECURE IN PLACE WITH BACKFILL.
5. PUNCH OUT PIPE HOLE OPENINGS IN THE END PLATES AS REQ'D. TO CONNECT INLET PIPES AND TERMINAL CLEANOUTS.
6. SCARIFY FULL WIDTH OF TRENCH FLOORS & TRENCH WALLS TO FULL HEIGHT OF INFILTRATION CHAMBERS AT 1½" DEPTH W/ HAND RAKES PRIOR TO CHAMBER PLACEMENT.
7. NO MECHANIZED EQUIPMENT ALLOWED ATOP EXCAVATED TRENCH FLOORS.
8. FILL SIDEWALL AREA TO TOP OF CHAMBERS WITH NATIVE SOIL (COARSE SAND OR FINE GRAVEL, MAY ALSO BE USED: NO HEAVY CLAY, SILT, OR DEBRIS SHALL BE INCLUDED.)
9. "WALK IN" FILL TO COMPACT SOIL ALONG SIDES OF CHAMBERS TO EQUIVALENT OF ADJACENT NATIVE IN SITU SOILS.
10. COVER LEACHING CHAMBERS WITH SCREENED SELECT NATIVE BACKFILL, DEVOID OF ROCKS, CLODS, OR FRAGMENTS LARGER THAN 1 ½" NOMINAL DIAMETER OR ANY VEGETATIVE OR OTHER DEBRIS.
11. NO MECHANIZED COMPACTION OR OTHER CONSTRUCTION EQUIPMENT ALLOWED ALONG OR ATOP INSTALLED CHAMBERS!
12. INFILTRATION CHAMBER HEIGHT MAY VARY BY MFR. (SUBJECT TO REQ'TS. FOR SUBMITTAL REVIEW) -- DO NOT EXCEED MAXIMUM TRENCH DEPTH SHOWN.
13. IF A SAMPLE OF SOIL WITHIN THE WORKING DEPTH CAN BE EASILY ROLLED INTO THE SHAPE OF A WIRE OR RIBBON, THE SOIL MOISTURE CONTENT IS TOO HIGH FOR CONSTRUCTION PURPOSES.
14. IF APPARENT CLAY SOIL TYPES ARE ENCOUNTERED, CONSULT THE ENGINEER BEFORE PROCEEDING.

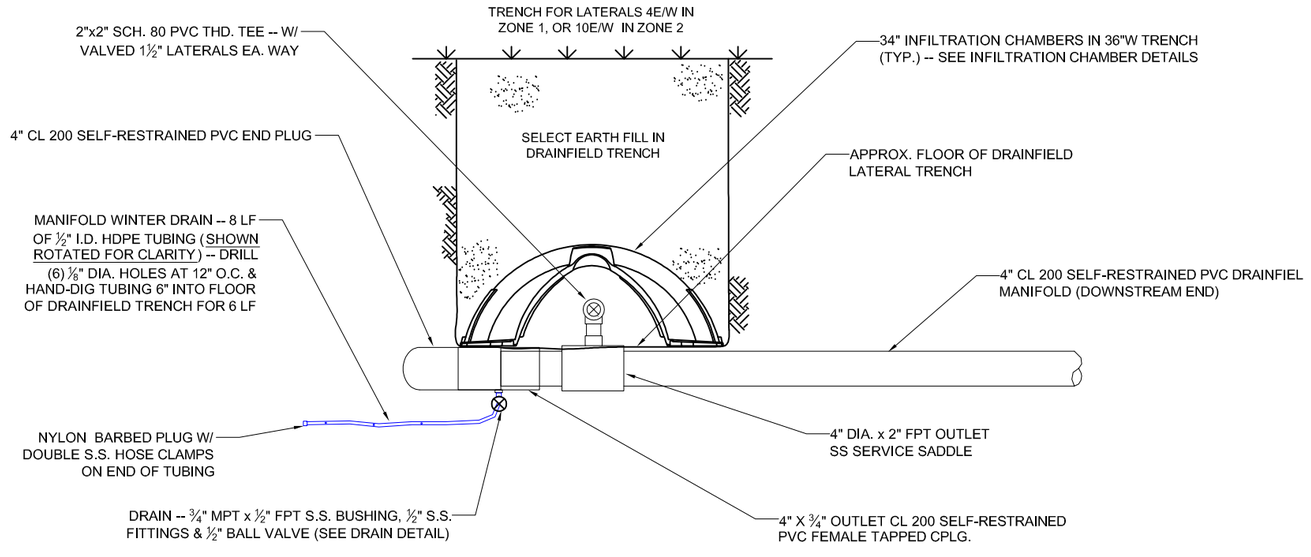
INFILTRATION CHAMBER & DRAINFIELD TRENCH SECTION (TYP.)

scale: ¾" = 1'-0"



WINTER DRAIN DETAIL (TYP.)

scale: 1" = 0'-6"



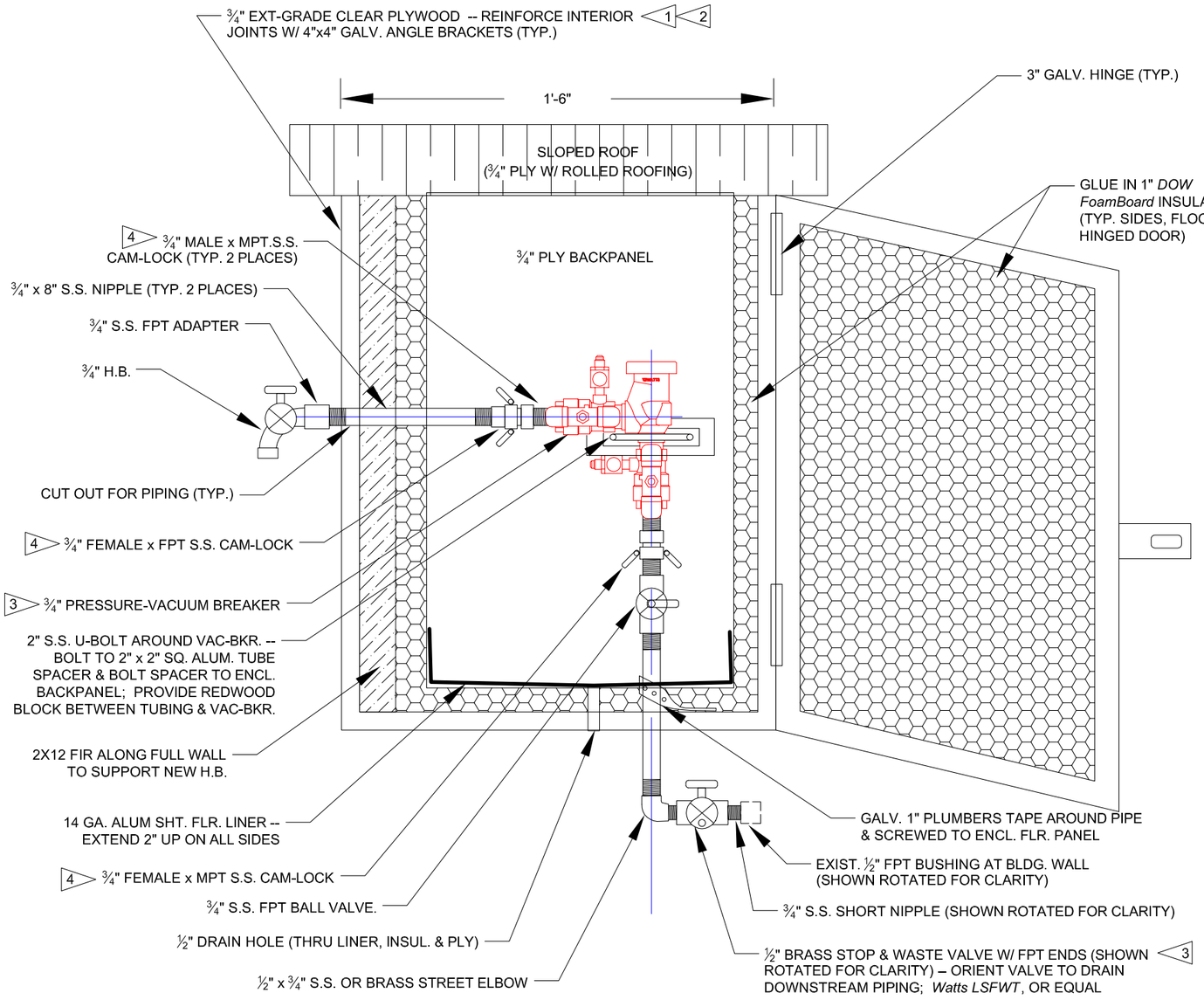
DRAINFIELD MANIFOLD WINTER DRAIN (TYP. END EA. MANIFOLD)

scale: ½" = 1'-0"

BETA

designed: Alden G. Beard. P.E.
date: July 31, 2017
revised: Feb. 20, 2019

Lewis & Clark Caverns State Park
Upper Visitor Center Septic Replacement
INFILTRATION CHAMBER SECTIONS & DRAIN DETAILS

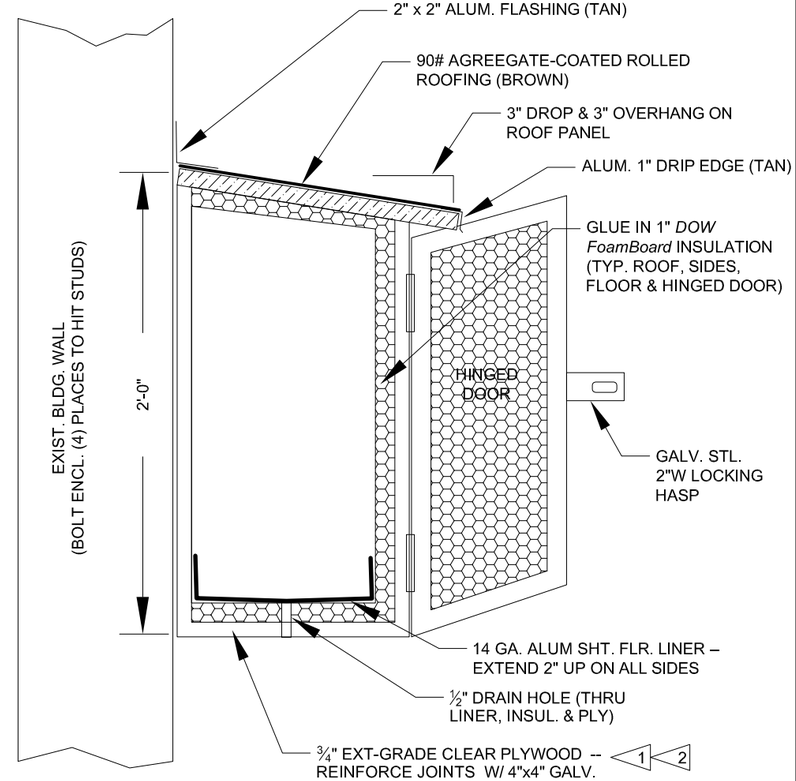


PRESSURE-VACUUM BREAKER PLUMBING & ENCLOSURE ELEVATION

scale: 1" = ~6" [on 11x17 sheet]

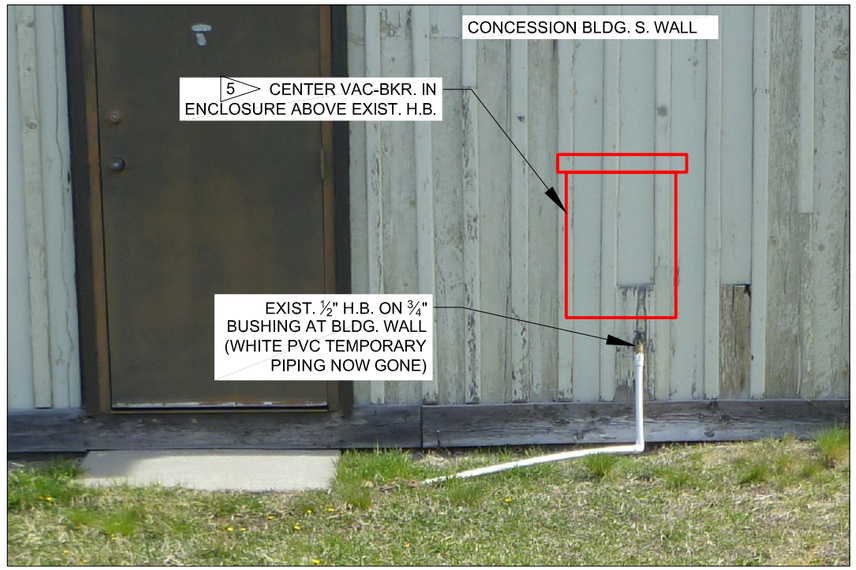
NOTES:

1. PROVIDE 1x2 FURRING STRIPS ON ROOF, SIDES & DOOR OF ENCLOSURE TO MATCH STYLE & SPACING OF EXIST. BLDG. SIDING.
2. PAINT ENCLOSURE EXTERIOR W/ (2) COATS SELF-PRIMING EXTERIOR LATEX – COLOR TO MATCH EXIST. BLDG. SIDING.
3. PRESSURE-VACUUM BREAKER ASSEMBLY TO BE REMOVED FOR WINTER USING CAM-LOCK FITTINGS; INLET PIPING TO BE DRAINED THROUGH STOP & WASTE VALVE.
4. ALL CAM-LOCK FITTINGS TO BE 150 PSI RATED.
5. PROVIDE CLEARANCE BETWEEN ENCLOSURE & NEW 240V ELECTRICAL CONDUIT (SEE ELECTRICAL SHEETS 15 & 18).



VACUUM BREAKER ENCLOSURE SECTION

scale: 1½" = 1'-0" [on 11x17 sheet]



VACUUM BREAKER & ENCLOSURE LOCATION

no scale

designed: Alden G. Beard. P.E.
date: Oct. 6, 2017
revised: Feb. 19, 2019

Lewis & Clark Caverns State Park
Upper Visitor Center Septic Replacement
CONCESSION BLDG. BACKFLOW PREVENTION DETAILS